

## AMENDMENTS TO THE SPECIFICATION

*Please replace the paragraph on page 12, line 28 to page 13, line 20 with the following paragraph, marked-up to show changes made.*

In another preferred mode of the rotary motor molecule V<sub>1</sub>-ATPase of this invention, the D subunit is bound to a joint material. The term “joint material” in this case means a material for transmitting the rotational motion of the D subunit of the V<sub>1</sub>-ATPase to another component (e.g., a gear or a shaft of a motion engine, or the like). ~~Also~~Alternatively, this joint material is not for connection to another component, but can ~~also~~ be utilized as a “probe” or a “propeller” for observing the rotation of the V<sub>1</sub>-ATPase. Examples of joint materials that can be utilized include a plurality of previously mentioned beads (microspheres) that are connected as seen in Embodiments described below, and a fine fiber such as actin filament (Nature 386: 299-302, 1997). This joint material can be bonded to Cys residue of the D subunit, for example, by maleimide or disulfide bonding or the like. However, the D subunit of the V<sub>1</sub>-ATPase derived from *Thermus thermophilus*, the amino sequence of which was indicated in SEQ ID NO:5, does not have Cys residues, and thus a suitable non-Cys residue needs to be replaced by Cys residue. For this reason, in this invention, a joint material is preferably bound to Cys residue substituted for the 48th Glu residue or Cys residue substituted for the 55th Gln residue (preferably both) in SEQ ID NO:5. In addition, Cys residues other than those in D subunit (a total of nine Cys residues in A subunit, three Cys residues in B subunit) are preferably replaced by other residues (e.g., Ser residues) so that these Cys residues are not bound to the joint material.